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A MISSILE DEFENSE FOR ALL

BY

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USAWC STRATEGY RESEARCH PROJECT

A Missile Defense for All

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ABSTRACT

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Now, more than sixteen years after the creation of the Strategic Defense Initiative, the United States finds itself at a critical crossroads in determining how best to defend the homeland and deployed military forces against ballistic missile attack. The Department of Defense, and more specifically the Ballistic Missile Defense Organization (BMDO), appears prepared to make the difficult developmental and fielding decisions concerning the Missile Defense systems of the future. These systems will provide both the needed protection to deployed U.S. military forces and a limited defense to the United States well into and beyond the next decade. BMDO must not squander away its opportunity and responsibility to choose those Theater and Air Missile Defense and National Missile Defense systems that will produce the best defense while eliminating costly missile defense programs that show little hope of success. These are important times for Missile Defense.

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A MISSILE DEFENSE FOR ALL...

Introduction. The current missile defense policy is a product of President Ronald Reagan's 1983 Strategic Defense Initiative (SDI) that challenged the scientific community to examine the possibility of developing a system that would protect the United States from ballistic missile attack.¹ Now, sixteen years later, intense debate continues to be waged in both the Congress and the Administration, primarily within the Department of Defense (DOD), on how to proceed with the development, experimentation, and fielding of the missile defense systems that have been born of this extraordinary, wide-ranging, and rather costly effort. There is no doubt that the United States now finds itself at a critical crossroads with respect to missile defense and the forthcoming decisions that will ultimately decide the success or failure of the overall anti-ballistic missile defense program. These programs, managed by DOD's Ballistic Missile Defense Organization (BMDO), are the basis for the Clinton Administration's efforts to defend the continental United States and deployed U.S. forces, as well as those of our allies, in the foreseeable future from ballistic missile attack.

Success on the anti-ballistic missile defense front will only come about if and when the current Administration determines the time is right to make the difficult and highly politicized decisions surrounding Theater Air and Missile Defense (TAMD) and National Missile Defense (NMD) weapons' programs. Now is the

time to make the hard decisions concerning the further development and testing of missile defense systems. The United States can no longer afford the large developmental and experimental infrastructure that characterized the anti-ballistic missile defense efforts for the past sixteen years. The days of individual military Services, in concert with various elements of the defense industry, pursuing separate, redundant, and overlapping missile defense programs must come to an end. This paper will present three options that increase, reduce, and/or eliminate the funding to each of the six TAMD weapons' programs in order to propel the fielding of the most effective TAMD and NMD systems by the year 2005. Upon review of the three TAMD options, the recommended and most preferred of the three options, if adopted by the Administration and Congress, will provide an anti-ballistic missile defense capable of defeating the threat out to and beyond the year 2010 within the parameters of projected DOD budgets. The United States can no longer politically or militarily afford to live in a dream world where six separate and unique TAMD systems remain fully-funded.

"You can't always get what you want, but if you try sometimes, you just might find, you get what you need!" *The Rolling Stones, 1966*

Before continuing, it is important to note that the world of missile defense, specifically the anti-ballistic missile defense piece, is an ever-changing one. Very little remains constant from one week to the next. For example, the funding levels for

the various programs are often used as a gauge to determine which TAMD programs are most likely to succeed in the race to fielding. In the past, adjustments to funding levels were accomplished through the frequent re-prioritization of TAMD programs to rationalize the shifting of funds from one program to another. Additional funds from outside BDMO were not forthcoming, thus the program(s) that demonstrated the most promise in the short-term received an increase in funding at the expense of an other program. Not exactly the best way to manage missile defense.

For this reason, weapons' program costs may often be seen as fact one day, and fiction the next. Although specific TAMD programs may have succumbed to additional funding cuts or increases during the time period of this paper's research, none were significant enough to upset the basic pool of six TAMD weapons' programs. However, the recent comments² by the Secretary of Defense have serious implications for three of the six TAMD programs after the year 2000 and were considered in developing options for the development and fielding of future TAMD systems.

Background. In 1993, BMDO was formed and inherited the SDI programs as the focus shifted from concepts to actual development and fielding of missile defense systems.³ Within DOD, BMDO is responsible for "managing, directing, and executing the acquisition of joint missile defense systems."⁴ To this end, BMDO is structured and organized to respond to the *current*

Theater Ballistic Missile (TBM) threat and a *future* threat to United States, should it ever emerge. This distinction between current and future ballistic missile threats is important in understanding the relevancy of the Clinton Administration's missile defense policy. This Administration, like those before, continues to place the weight of its missile defense effort on the defense of deployed forces vis-a-vis the U.S. homeland in response to today's threat. This focus on the current threat, at the risk of overlooking the future threat, has many of those outside the Administration questioning the wisdom of such a strategy.⁵

Policy Formulation. Not unlike any other national security policy, the United States' missile defense policy originates from the identification of specific threats and the need to defend against them. Building upon previous Administrations' successes in the missile defense policy arena, the Clinton Administration has formulated a missile defense policy that consists of three major components: arms control; deterrence through the use of intercontinental ballistic missiles, conventional and nuclear forces; and anti-ballistic missile defense systems that defend the United States and its military forces from missile attacks. In comparing missile defense with other national policies, the acceptance of a high level of risk is a major policy distinction that encourages criticism of the current Administration as being too soft on missile defense policy. Of the three components of

missile defense, there is little doubt that the anti-ballistic missile defense component is currently the least promising, but the arms control and deterrence components may soon be of little significance given the suspected rise of rogue states that are uninterested and unwilling to play by the rules.

To fully understand the U.S. missile defense policy one must first have an appreciation of the threat posed to U.S. forces and the U.S. homeland from ballistic missiles. Up until the summer of 1998 when the release of the "Report of the Commission to Assess the Ballistic Missile Threat to the United States,"⁶ most experts agreed, and especially those within the Clinton Administration, that the risks associated with a ballistic missile attack against U.S. and allied forces or to the continental United States were relatively low. But views of the threat were changed with the release of the Commission's report.

The Commission, chaired by former Secretary of Defense Donald Rumsfeld, painted a much different picture than the intelligence community's 1995 assessment of the ballistic missile threat⁷ to the United States. The Rumsfeld Commission, with all nine Commissioners unanimously agreeing, concluded that the United States may have "little to no warning before so-called 'rogue nations,' such as North Korea, Iran and Iraq, are able to deploy long-range ballistic missiles capable of reaching U.S. territory."⁸ Even after thorough consideration of all the changes in the world since the end of the Cold War and the feared

proliferation of missile technology to rogue states, the Administration's assessment of the ballistic missile threat remained little changed from that of the Cold War until the release of the Commission's report and congressional pressure to respond to the Rumsfeld Commission's findings.

The lack of a change in missile defense policy is justified when the conditions remain relatively constant, but this decade has witnessed a growing threat to U.S. forces from ballistic missile attack and the Administration has been slow to recognize this fact. For this reason, the identification and assumption of risks were key factors in the formulation of the U.S. missile defense policy and recent events (Rumsfeld Commission's report, North Korea and Iran missile tests) are beginning to provide the impetus for the Administration's increased commitment to the development and fielding of anti-ballistic missile systems.¹⁰ Unquestionably, and rightly so, the implementation of U.S. missile defense policy is paced by the Administration's assessment of the ballistic missile threat. The threat is changing and so too is the Administration's implementation of the missile defense policy.

Current Missile Defense Policy. A review of the current missile defense policy will demonstrate how the three components of missile defense work together and establish the parameters for the development of TAMD options. The current missile defense policy encompasses much more than the ongoing efforts of BMDO in

the active defense arena of TAMD and NMD. Although the TAMD and NMD initiatives receive a great deal of attention, primarily because of the price tag and problems associated with the respective programs, there are two other vital components to the overall strategy dealing with ballistic missiles and Weapons of Mass Destruction (WMD). Therefore, there are "three lines of defense"¹¹ that presently combine to deter ballistic missile attacks against the U.S. homeland, U.S. deployed forces and those of its allies.

First, there are the arms control initiatives, most importantly the 1968 Treaty on the Non-Proliferation of Nuclear Weapons. The commitment by the 180 nations that are signatories to the Treaty to limit nuclear weapons to those five countries (United States, Russia, United Kingdom, France, and China) that possessed nuclear weapons prior to 1967 has met with a great deal of success over the past 30 years. While the 175 non-nuclear weapon states "agree not to pursue development or acquisition of nuclear weapons or other nuclear explosive devices,"¹² the nuclear weapons states are committed to undertaking negotiations in pursuit of nuclear disarmament in accordance with Article VI of the Treaty.¹³ To this day, the Non-Proliferation Treaty plays a vital role in reducing the threat to the United States and its interests and will continue to contribute in a bigger way once the Russians ratify START II.

Also included in this first line of defense against ballistic missiles and WMD are the DOD programs aimed at dismantling "warheads and missiles that had been directed against us"¹⁴ as a result of the Cooperative Threat Reduction (CTR) program supported by Nunn-Lugar funds. With the passage of START II, both the United States and Russia will reduce their nuclear arsenals to 3,000-3,500 strategic weapons. The CTR program assists the Russians in their ability to dismantle the many thousands of nuclear weapons that are no longer in service due to arms control agreements.¹⁵

Presently, there are some serious issues with the Russians concerning the ratification of the START II arms treaty.¹⁶ In response to the recent U.S./U.K. bombing campaign against Iraq, the Russian Parliament scuttled all actions on START II in protest to the bombing campaign. To further complicate and threaten the prospects for the START II treaty, the Administration's announcement on 21 January 1999 to provide the necessary funding over the next five years to develop and field a NMD system not only jeopardized the ratification of START II, but has now left the Russians with the belief that the United States is no longer committed to the 1972 Anti-Ballistic Missile (ABM) Treaty.¹⁷

The ABM Treaty has been and continues to be a cornerstone to the security of the United States. However, the Clinton Administration's decision to proceed with the development of an

NMD system is viewed by the Russians as a breach of the Treaty and a threat to their security.

In the Treaty on the Limitation of Anti-Ballistic Missile Systems the United States and the Soviet Union agree that each may have only two ABM deployment areas, so restricted and so located that they cannot provide a nationwide ABM defense or become the basis for developing one. Each country thus leaves unchallenged the penetration capability of the others retaliatory forces.¹⁸

The Administration remains committed to the ABM Treaty and is working to resolve "interpretation" matters with the Russian leadership. Regardless of the outcome with the Russians, it appears that the Administration will press on with the development and fielding of an NMD system with or without changes to the ABM Treaty.¹⁹

Deterrence is the second component of the three-pronged approach to handling missile defense. The U.S. capability to employ either land-based or sea-based intercontinental ballistic missiles has served us well over the past half-century in deterring any long-range missile threat to the United States. Also, the strong conventional forces and theater nuclear forces help deter in the event of a smaller or limited nuclear attack.²⁰

When and if the first and second components fail to constrain/restrain the use of an enemy's ballistic missile capability, then the third line of defense provides the United States and its military a means to defend against an attack.

The Anti-Ballistic Missile Defense program is America's ultimate insurance policy in the

case of a strategic threat to the United States from rogue states or from accidental and/or unauthorized launch. For our deployed forces, we are developing and fielding both lower-tier and upper-tier Theater Missile Defenses to counter regionally oriented missile attacks.²¹

It is BMDO who manages this third line of defense for DOD. The remainder of this paper will focus on the TAMD and NMD aspects of the missile defense programs to determine if current missile defense policy is preparing the United States and its military forces for today's threats and those it may encounter through the year 2010 and beyond.

Before focusing on the anti-ballistic missile defense weapons' programs, a short summary of BMDO's objectives is necessary to show how the missile defense programs are juggling the requirements for TAMD with those of NMD in dealing with national security risks. The BMDO program objectives are:²²

1. Develop and enable the deployment of a cost effective, affordable, and interoperable Theater Air and Missile Defense (**TAMD**) to meet the missile threat to *deployed U.S. forces, friends, and allies*.
2. Develop options for and deploy when directed, an anti-ballistic missile system that is capable of providing effective *defense of the U.S. homeland* against limited attacks of ballistic missiles, including accidental, unauthorized launches or deliberate attacks. (This is **NMD**).
3. Plan and execute a coherent missile defense advanced technology program to reduce program risk, improve systems performance and affordability, and keep pace with the threat.

Simply put, BMDO's anti-ballistic missile defense programs clearly support the Administration's third line of defense. Furthermore, the three components of the missile defense policy (nonproliferation (treaties/inspections/dismantling), deterrence, and anti-ballistic missile weapon system development), present a strong and aggressive position for missile defense as a major component of the United States' overall national security strategy. However, as will soon be discussed, the true challenge to any missile defense issue is not the articulation of the stated objectives but more importantly the ways in which the national security structure goes about fulfilling the policy goals.

Analysis of TAMD and NMD. Focusing on the third line of defense (TAMD and NMD), research shows that DOD elected to pursue an unbalanced missile defense program, through BMDO, to meet the policy objectives of defending both deployed U.S. and allied forces and the American homeland from ballistic missile attacks. DOD's **first** priority has always been, and remains so today, to rapidly develop and field anti-ballistic missile systems aimed at defeating the existing short-to-medium range missiles. These weapon systems are often referred to as the lower-tier²³ TAMD systems consisting of PATRIOT PAC-3, Navy Area Defense, and the Medium Extended Air Defense System (MEADS).²⁴

A subpriority under the TAMD umbrella has been the continued development, although at a slower pace, of wide area defenses to

defeat the longer-range theater missiles that are now beginning to emerge. These wide area defense weapon systems, which make-up the upper-tier TAMD systems, are Theater High Altitude Air Defense (THAAD), Navy Theater Wide (NTW), and the Air Force's Airborne Laser (ABL).²⁵

DOD's **second** missile defense priority is to those programs dealing with NMD. DOD's efforts in developing an initial NMD system rests upon the 3-plus-3 plan as described in the 1997 Quadrennial Defense Review.²⁶ The goal of the program is to develop an NMD system within the next three years (by the year 2000) that is capable of defeating long-range missile threats to the United States. If a threat does begin to emerge, then the intent is to deploy a system within 3 years, by the year 2003. Obviously, the system would only be able to defend against a very limited attack.

As stated earlier, the Rumsfeld Commission Report and the missile tests by both N. Korea and Iran has re-energized the Administration's commitment to developing and fielding an NMD system within the framework of the 3-plus-3 program strategy.²⁷ The current NMD budget of \$4 billion for research and development will receive a \$6.6 billion increase over the next five years to field an NMD system. Although the Administration is sticking to the 3-plus-3 strategy, the technological challenges involved with NMD systems makes it unlikely this late in the game that a system could be fielded before 2005.²⁸

The **third** and final priority for the Defense Department's overall BMD program concerns the technology base. It is through the improvements in technology that the TAMD and NMD programs are able to meet the challenging and ever-changing threat. Vast amounts of resources are required in the technological development and testing phases for the lower-tier and upper-tier TAMD systems, and NMD anti-ballistic missile programs.²⁹

The Defense Department has focused its' missile defense efforts by prioritizing various TAMD and NMD programs based on the current threat and available funding. On the surface, the weighted approach of favoring TAMD vis-a-vis NMD appears to meet the policy objectives, but DOD has now come to the realization that it may have been setting itself up for "missile" failure by downplaying the ballistic missile threat to the United States. In the past, DOD failed to demonstrate the wherewithal to make the difficult and tough decisions regarding funding and prioritization of missile defense systems. Individual Service needs and requirements generally won the day as demonstrated by the ongoing TAMD weapons' programs, all of which deal with defeating a similar-type target set. The total TAMD program is estimated at more than \$40 billion and consists of the following six programs:³⁰

- **PATRIOT PAC-3.** Land-based, lower-tier interceptor. Acquisition cost is \$7.4 billion. **(Army) (1999)**
- **THAAD.** Land-based, upper-tier interceptor. Cost is \$14.8 billion. **(Army) (2007)**

- **MEADS.** Land-based, lower-tier interceptor. Eventually replaces PATRIOT. Cost is \$2.0 billion **(Army) (2006)**
- **Navy Area Defense.** Sea-based, lower-tier interceptor. Similar to PAC-3 but shot from Aegis cruisers and destroyers. Cost is \$6.3 billion. **(Navy) (2005)**
- **Navy Theater-wide Defense.** Sea-based, upper-tier interceptor. THAAD like capability from Aegis cruisers and destroyers. Cost is \$5.0 billion. **(Navy) (2010)**
- **Airborne Laser.** Boost-phase interceptor. Employs a chemical laser carried on a 747 airplane. Upper-tier. Cost is \$6.1 billion. **(Air Force) (2006)**

Clearly, there is sufficient funding in the BMDO programs to support the objectives of the current missile defense policy, especially in the TAMD arena. Unfortunately, BMDO leaves itself open for criticism due to its inability to reign in the Services and their respective programs. Although there might appear to be sufficient funding for TAMD, the seemingly autonomous TAMD operations by each Service, coupled with continuing test failures, are proving very costly to the overall TAMD effort. As described later in this paper, the three options and the recommended course of action will offer BMDO a solution that justly promotes those TAMD programs that warrant fielding.

Likewise, based on funding levels, the expected infusion of dollars into NMD in FY2000 will certainly contribute to the development of NMD technologies over the next six years.³¹ The heated debate over future NMD funding that began in September 1998, and remained unresolved as NMD legislation failed to clear the Senate for FY1999 funding,^{32 33} was settled to a large extent

by the Administration's decision in January 1999 to pursue the development and fielding of a limited NMD system. Obviously, the need for technological breakthroughs and the negotiations with the Russians over modifications to the ABM Treaty are two key issues impacting the fielding of an NMD system.

Regardless of the Administration's current concerns over the ABM Treaty and its constraints on developing and fielding NMD systems, the Administration's 3-plus-3 program strategy for NMD remains committed to a deployment decision in the year 2000 based upon the technological feasibility of fielding an NMD system by 2004-5.³⁴

Whether or not there is a rush to field an NMD system after 2000, the NMD and TAMD programs are resourced to a high level and support the Administration's overall missile defense policy. The past sixteen years of missile defense experimentation and testing has the United States uniquely poised to enter the new millennium with the right technologies to defeat the emerging ballistic missile threats. In the coming years, BMDO's efforts must focus on developing and fielding the very best of these technologies on those weapon systems that demonstrate and produce the greatest opportunity for success.

In the Year 2010. The threat of a ballistic missile attack against U.S. forces that deploy to future hot spots is a priority force protection concern for field commanders. Third world armies and "rogue" states are not investing in high-performance

aircraft, but rather in ballistic and cruise missiles. For a fraction of the costs of what it takes to purchase a jet aircraft, countries may purchase a vast arsenal of various missile types that can produce considerable damage to a deploying force. If the U.S. military is to be an expeditionary one, then it can expect to deploy into theaters of operation that pose great risks to U.S. personnel as they debark at airfields and seaports. By the year 2010, enemies will key on disrupting U.S. operations and the logistics flow early-on in a conflict by either launching ballistic missiles or WMD. Potential enemies' ballistic missiles of 2010 will consist of longer-range, enhanced lethality, and better overall capability (accuracy) than those that exist today.³⁵

Options. Given the advanced ballistic missile threat of the year 2010, the Administration contends that the U.S. missile defense policy is sufficiently responding to meet and defeat the anticipated threat. However, even with the added emphasis and attention given the NMD programs, the continued imbalance between TAMD and NMD programs must be corrected, especially given the redundancy among the Army and Navy lower and upper-tier systems. The easy solution is to eliminate what may be viewed as "excess" TAMD programs while sliding the savings over to the NMD side-of-the-house. This action garners serious consideration as well as taking a hard look at changing the NMD 3-plus-3 program strategy

due to the emerging ballistic missile threats to the U.S. homeland.

However, before shifting more resources to the NMD side at the expense of TAMD, further and more convincing evidence of a serious and "imminent" ballistic missile threat to the U.S. homeland must be validated.³⁶ Even the Rumsfeld Commission "contends that its timelines differ from the intelligence community in part because it focused on the unknown rather than hard facts, which is what intelligence analysts often rely on."³⁷ The one hard fact that has materialized since the Commission's report is the North Korean Taepo Dong 1 launch this past August which demonstrated just how far in intercontinental ballistic missile development the North Koreans have come.³⁸

As stated earlier, the anti-ballistic missile piece of the missile defense policy objectives are well-defined and supported by funded TAMD, NMD, and technology base programs. However, the one Achilles heel of missile defense policy that is currently hurting the TAMD program is BMDO's inability to pull-the-plug on those weapon systems with little prospect for success. The period of unconstrained Defense budgets is long gone and for this reason BMDO can no longer continue to develop and fund six separate and non-interoperable TAMD programs!

The following three TAMD options take a close look at reducing the overall number of TAMD programs. By honing in on those specific programs that show the most promise, while

eliminating those that show little hope of succeeding, strengthens BMDO's role in creating a missile defense force for the year 2010.

Option One. One alternative is to scrap the Navy Area Defense, THAAD and Airborne Laser programs for a savings of approximately \$27 billion. These savings would be used to accelerate the development and fielding stages of the remaining TAMD programs (PAC-3, Navy Theater Wide, MEADS) while doing away with the NMD 3-plus-3 plan and proceeding with the immediate, or as soon as technologically feasible, deployment of an NMD "protective shield."³⁹

- **PATRIOT PAC-3.** Continue with development and fielding. Complete deployment during 1999. (Lower-tier)
- **Navy Area Defense.** Eliminate all further development. (Lower-tier)
- **Navy Theater-wide Defense.** Accelerate development and field NLT 2006. (Upper-tier)
- **MEADS.** Continue with testing and development. Complete fielding NLT 2006. (Lower-tier)
- **Airborne Laser.** Eliminate all further development. (Upper-tier)
- **THAAD.** Eliminate as TAMD program. Move to NMD for development and fielding. Complete deployment NLT 2005. (Upper-tier)

Both of the Navy systems are behind in development; the THAAD program has been troubled over the past two years (even though it is the most advanced of the military's attempts to try and intercept a missile with another missile, head-on, in the upper or outer atmosphere);⁴⁰ and the Airborne Laser platform is vulnerable (a 747 aircraft).

The Army would continue its PATRIOT PAC-3 and MEADS programs, thus guaranteeing terminal (point-type) defense, with limited range, to initial entry forces and critical assets through the year 2010. The Navy Theater Wide Defense would provide the THAAD-like capability (defend an area with a radius of more than 100 miles) from the well-protected confines of the open sea. The years of research, testing and development that have been dedicated to THAAD would help infuse the Navy Theater Wide Defense program (projected fielding in 2010) while shifting the remaining savings from the program's elimination into NMD. In the end, the NMD weapon of choice might very well be a new and better THAAD.

Eliminating the Navy Area Defense program (similar to PAC-3 but not fielded until 2005 at the earliest) makes sense as long as the Navy Theater Wide Defense system's development and fielding are accelerated to 2006-7. During the interim period, deploying troops will assume risk from ballistic missile attack at the Airports of Debarkation (APODs) and the Seaports of Deparkation (SPODs) until PATRIOT PAC-3 is airlifted in. But this is no different than the risk already being assumed by the current programs since Navy Area Defense is 4-5 years away from fielding.

Option Two. A second and more popular alternative, especially from the Navy's view, is to buy Navy Area Defense, Navy Theater Wide Defense and PATRIOT PAC-3.⁴¹ The savings

generated by this Option's program realignment would contribute up to \$23 billion for the remaining TAMD systems. The Navy makes a relatively good argument for this alternative, but the problem is that their systems are far behind in development. Although there are problems with five of the six TAMD programs (PAC-3 being the exception), the elimination of THAAD, MEADS, and Airborne Laser would place the remaining programs in better alignment with the BMDO program objectives of protecting forward-deployed and expeditionary forces. Furthermore, a naval TAMD capability can rapidly respond to potential hot spots (as long as it is within 10 miles of a coastline) and provide missile defense coverage for the APOD(s) and/or SPOD(s). The Option Two laydown is as follows:

- **PATRIOT PAC-3.** Continue with development and fielding. Complete deployment during 1999. (Lower-tier)
- **Navy Area Defense.** Continue with development and fielding. Complete deployment NLT 2003. (Lower-tier)
- **Navy Theater-wide Defense.** Continue with development and fielding. Complete deployment NLT 2006. (Upper-tier)
- **MEADS.** Eliminate all further development. (Lower-tier)
- **Airborne Laser.** Eliminate all further development. (Upper-Tier)
- **THAAD.** Eliminate as TAMD program. Move to NMD for development and fielding. Complete deployment NLT 2005. (Upper-Tier)

The Navy TAMD systems can adequately provide missile defense during force build-up at the ports and coastal airfields pending deployment of follow-on PATRIOT PAC-3 to the Theater. Obviously, a major limitation to the Navy's two-tiered sea-based TAMD is its inability to defend maneuver forces and critical assets as they

move further inland and out from under the Navy TAMD umbrella. Although the upper-tier system, Navy Theater Wide Defense, could possibly range as far as 50 miles inland, it is unrealistic to believe that the Navy would engage a missile that posed no threat to its ships or the lodgment area once ground forces have moved inland. That responsibility would fall to the Army's systems. If the future role of the U.S. military through the year 2010 is indeed expeditionary, then the Navy's approach to TAMD warrants serious consideration. The ballistic missile threat to ground forces as they move out from under the Navy TAMD umbrella may be minimal at best and categorized as low risk, especially against ground combat formations. Many might agree that this is a risk worth taking.

Again, one of the major drawbacks to this alternative are the Navy's TAMD development delays that could extend the fielding of the upper-tier system to 2010. This is unacceptable given today's threat and the TAMD funding levels. This may be palatable to those that are looking out to the year 2010, but the ballistic missile threat that Navy TAMD is being built to handle already exists in the world today. Granted, the best case scenario for the Army's THAAD system puts it in the field in 2007, but it is much further along in development than the Navy Theater Wide Defense which is dependent on THAAD research and development to meet its delivery date of 2010.

Therefore, as long as America's enemies allow the United States the time to develop the Navy's TAMD systems, (Navy Area Defense in 2005 and Navy Theater Wide Defense in 2010), then this alternative is worth examining. Presently, until the Army is able to get PATRIOT PAC-3 fielded in 1999, PATRIOT PAC-2 is the only TAMD system available to U.S. forces and our allies. American military forces are betting that the PATRIOT system is capable of handling the limited ballistic missile threat that exists among those countries that the United States could potentially go to war against in the next few years (1999-2003).

Option 3. A third option is to further develop the three lower-tier systems while eliminating the upper-tier effort. Building upon the successes of PATRIOT, the other two lower-tier systems are further along in development and better positioned to succeed than any of the upper-tier systems. The freeing-up of almost \$26 billion would allow the Army and Navy to develop and employ a more advanced and robust missile defense umbrella using only lower-tier systems. The increased number of lower-tier systems would go a long way towards making up for any defense weaknesses brought about by the absence of an upper-tier intercept system. Option Three is as follows:

- **PATRIOT PAC-3.** Continue with development and fielding. Complete deployment during 1999. (Lower-tier)
- **Navy Area Defense.** Continue with development and fielding. Complete deployment NLT 2002. (Lower-tier)
- **Navy Theater-wide Defense.** Eliminate any further development. (Upper-tier)

- **MEADS.** Continue with development and fielding. Complete deployment NLT 2005. (Lower-tier)
- **Airborne Laser.** Eliminate as TAMD program. Move to NMD for development and fielding. Complete deployment NLT 2004. (Upper-tier)
- **THAAD.** Eliminate as TAMD program. Move to NMD for development and fielding. Complete deployment NLT 2002. (Upper-tier)

The PATRIOT PAC-3 missile, the common element among the three lower-tier systems, is a proven success and currently provides ground forces with their only means of anti-ballistic missile protection until either Navy Area Defense or MEADS are fielded. The Navy Area Defense system will provide initial entry forces the needed TBM coverage until PAC-3 arrives on the scene. The Navy Theater Wide Defense system provides an extended range of TBM coverage, but the Navy Area Defense system is being designed to shoot down the same type of ballistic missile, albeit at a closer range. Redundancy is nice, but given the current budgetary environment the elimination of Navy Theater Wide Defense is a prudent act.

Meanwhile, DOD must continue to fund and develop MEADS. This is not a complementary system, but rather a replacement for PATRIOT. MEADS is a highly deployable and mobile system that will maneuver with mechanized and armored forces. This is a big improvement over the very limited off-road capability of the PATRIOT system. Additionally, MEADS provides 360 degree coverage to the defended asset/force while PATRIOT's unclassified engagement fan is only 90 degrees out to 30 km. In other words,

only assets positioned within the PATRIOT system's footprint are protected from TBMs. MEADS is needed to defeat the ballistic missile and cruise missile threat for the years 2006 and beyond.

Recommendation.

TMD. First, with respect to the TAMD programs, the salami-slicing of missile defense dollars among the Army, Navy and Air Force must be eliminated. Over the past few years, BMDO essentially lost the stewardship of the TAMD programs and thereby contributed to the high number of test failures and cost overruns. While BMDO and the Congress are beginning to get a better handle on the future TAMD requirements, the Administration must ensure that the best mix of TAMD systems are developed and fielded by 2006-7. The simplest and most responsible way to effect the rapid advancement of TAMD systems is to fully invest in those technologies/systems that show the most promise and provide the biggest bang for the buck. After a 16-year investment in missile defense, it is now time to pare and/or eliminate those TAMD programs that are redundant and/or show little signs of success.

Therefore, Option One provides the best TAMD mix required to meet present and future theater ballistic missile threats. America and its fighting forces can operate relatively unscathed from ballistic missile attack well into the coming decade with one lower-tier system (PATRIOT PAC-3) and one upper-tier system (Navy Theater Wide Defense). The subsequent development and

fielding of MEADS in 2006 provides the follow-on and improved lower-tier technology to better defend U.S forces while eventually replacing PATRIOT PAC-3.

NMD. The Administration has made the decision to field an NMD system by the year 2005 if indeed a ballistic missile threat from rogue states emerges. The Administration's plans are to build a limited NMD system at two sites, one in Alaska and one in North Dakota, with up to 200 total launchers.⁴² Although the Administration will work hard with the Russians to amend and/or modify the 1972 Anti-Ballistic Missile Treaty to allow the United States to deploy a limited NMD system, this Administration appears to have already decided that NMD is a higher priority than the ABM Treaty. Some in Congress, however, still remain unconvinced that the Administration will continue with an NMD deployment if the Russians refuse to negotiate ABM Treaty modifications.⁴³

The NMD system currently under consideration by BMDO is not a space-based model as envisioned in the early days of SDI. Rather, the NMD system will be ground-based and consist of launchers (200), large tracking and detection radars, and satellite-based sensors.⁴⁴ For this reason, the movement of two former TAMD programs to NMD should greatly assist in speeding up the deployment of an NMD system. The technology gathered from both the THAAD and ABL development and experimentation can provide the bulwark for the future NMD system. Recognizing that

those within BMDO are working feverishly to develop an NMD system that could be deployed by the year 2005, unless the acquisition and testing pitfalls that befell THAAD can be overcome, NMD will have a long and challenging road ahead. However, without an ongoing effort to deploy an NMD system, the United States will remain vulnerable to long-range ballistic missile attacks well into the future.

Conclusion. The missile defense debates and technological problems that have plagued the world of TAMD and NMD will continue on for years to come, but the Clinton Administration's policy in the 1990s to stay the course with what it perceived as a balanced approach to missile defense has somehow keenly positioned the United States for success in the development and fielding of missile defense systems within the next four to five years. Recognizing that after sixteen years the United States has finally reached the threshold where today's decisions, or lack thereof, on missile defense policy will impact the security of the United States and its deployed forces well into the next millennium, the Administration's missile defense team appears committed to this daunting enterprise.

Although no hard choices have yet to be made with respect to the overall TAMD program, selection of any one of the three options would certainly go along way toward asserting BMDO's role in the acquisition, development, and fielding processes. The three Services' missile defense programs contributed immensely

during the developmental stages of TAMD weapon systems, but it is now time to choose the winners while unceremoniously burying the losers! For this reason, BMDO must assume a more assertive role throughout the entire missile defense acquisition and policy process.

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ENDNOTES

¹ Charles V. Pena, "Theater Missile Defense: A Limited Capability is Needed," Policy Analysis, No. 309, June 22, 1998, p.1; available from <<http://www.cato.org/pubs/pas/pa-309.html>>; Internet; accessed 9 September 1998.

² Daniel G. Dupont, "Pentagon Set to Announce Major Missile Defense Program Changes Today," Inside the Pentagon, 20 January 1999; available from <<http://ebird.dtic.mil/Jan1999/e10000120pentagon.htm>>; Internet; accessed 20 January 1999. DOD will announce the restructuring of the Army's troubled Theater High Altitude Area Defense program as well as the Navy's Theater Wide effort. Remarks prepared for the Defense Secretary William Cohen, who will address the issue at a press conference today, state that the new upper tier program is designed to "reward program success" by selecting one of the two for acceleration following test flights over the next few years. The Pentagon is also expected to announce it will not commit funds to the design and development phase of the Medium Extended Air Defense System and will pursue "technology development only," according to draft documents.

³ Malcolm O'Neill, LTG, US Army, "Ballistic Missile Defense: 12 Years of Achievement," Defense Issues 10, no. 37, (1995), p. 2; available from <<http://www.dtic.mil/cgi-bin/multigate/retrieve?u.html>>; Internet; accessed 9 September 1998.

⁴ Lester L. Lyles, LTG, USAF, "Statement before the Subcommittee on Defense, Committee on Appropriations, United States Senate," Ballistic Missile Defense Organization, April 22, 1998, p. 13; available from <<http://www.acq.osd.mil/bmdo/bmdolink/html/lyle22apr.html>>; Internet; accessed 9 September 1998.

⁵ James Hackett, "Missile Defense Technology Ready," Washington Times, 11 November 1998, sec. A, p. 16.

⁶ Craig Cenielo, "Rumsfeld Panel Releases Report on Missile Treaty to U.S." Arms Control Today, June/July 1998; available from <<http://www.armscontrol.org/ACT/junjul98/rumjj98.htm>>; Internet; accessed 2 Dec 98.

⁷ Ibid. According to a November 1995 National Intelligence Estimate (NIE 95-19) on the emerging ballistic missile threat to

North America, "No country, other than the major declared nuclear powers, will develop or otherwise acquire a ballistic missile in the next 15 years that could threaten the contiguous 48 states and Canada." Dissatisfied with the conclusion of that assessment, Congress, in the fiscal year 1997 defense authorization bill, ordered an independent review of the NIE.

⁸ Ibid.

⁹ Commission to Assess the Ballistic Missile Threat to the United States, Executive Summary of the Report of the Commission to Assess the Ballistic Missile Threat to the United States, report prepared by Hon. Donald H. Rumsfeld, Dr. Barry M. Blechman, General Lee Butler, USAF (Ret.), Dr. Richard L. Garwin, Dr. William R. Graham, Dr. William Schneider, Jr. General Larry D. Welch, USAF (Ret.), Dr. Paul D. Wolfowitz, and Hon. R. James Woolsey, 104th Congress, 15 July 1998, 4. "Concerted efforts by a number of overtly or potentially hostile nations to acquire ballistic missiles with biological or nuclear payloads pose a growing threat to the United States, its deployed forces and its friends and allies. These newer, developing threats in North Korea, Iran, and Iraq are in addition to those still posed by the existing ballistic missile arsenals of Russia and China, nations with which we are not now in conflict but which remain in uncertain transitions. The newer ballistic missile-equipped nations' capabilities will not match those of U.S. systems for accuracy or reliability. However, they would be able to inflict major destruction on the U.S. within about five years of a decision to acquire such a capability (10 years in the case of Iraq). During several of those years, the U.S. might not be aware that such a decision had been made."

¹⁰ Frank Wolfe, "Berger: U.S. Ready to Make Any Necessary Changes to ABM," Defense Daily, 14 January 1999, p. 5.

¹¹ Paul G. Kaminski, "DOD's Ballistic Missile Defense Strategy," Defense Issues 11, no. 25, (1996), p. 2; available from <http://www.defenselink.mil/speeches/1996/di1125.html>; Internet; accessed 4 Sep 1998.

¹² Department of Energy, The Treaty on the Non-Proliferation of Nuclear Weapons, May 4, 1996; available from <http://www.em.doe.gov/eis/treaty.html> Internet; accessed 21 December 1998.

¹³ Treaty on the Non-Proliferation of Nuclear Weapons, July 1, 1968; available from <http://www.fas.org/nuke/control/npt/text/npt2.htm> Internet; accessed 21 December 1998. "Article VI. Each of the Parties to the Treaty undertakes to pursue

negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a Treaty on general and complete disarmament under strict and effective international control."

¹⁴ Kaminski, p. 2.

¹⁵ Council for a Livable World Education Fund, Briefing Book on Ballistic Missile Defense, 30 March 1998, 5; available from <<http://www.clw.org/pub/clw/ef/bmdbook/lines.html>>. Internet. Accessed 2 December 1998. "At one time, the Soviet Union deployed tens of thousands of nuclear weapons against the United States. Now, with the START I and START II agreements, both the U.S. and Russia will reduce their arsenals to 3,000-3,500 strategic weapons. It is in America's security interest to ensure that Russia has the ability and resources to follow through on its commitments to verifiably dismantle the thousands of nuclear deliver systems. The Cooperative Threat Reduction (CTR) program assures that these weapons will never again be aimed at the United States. Of the \$442.4 million requested for CTR in FY 99, \$240 million is for the elimination and the safe and secure storage of weapons in Ukraine and Russia. The CTR program also assists Russia in the construction of a nuclear weapons material storage facility and conversion of Russian military plutonium reactors to a civilian reactor mode.

¹⁶ Bill Gertz, "President Backs Off Missile Defense Plan," The Washington Times, 13 January 1999, p. 3.

¹⁷ Ibid.

¹⁸ Council for a Livable World Education Fund; available from <<http://www.clw.org/pub/clw/ef/bmdbook/abmtreat.html>>; Internet; accessed 2 December 1998.

¹⁹ Dana Priest, "Cohen Says U.S. Will Build Missile Defense," The Washington Post, 21 January 1999, Sec. A, p.1.

²⁰ Kaminski, 2.

²¹ Ibid.

²² Lyles.

²³ Pena, p.9. "Systems for terminal defense that intercept the missile at relatively low altitudes (up to about 12-15 miles) are called lower-tier systems because the intercept point is in the lower regions of the atmosphere. Therefore, lower-tier

systems, in most cases, can defend only relatively well defined point targets, such as an airfield. Systems that can intercept missiles at higher altitudes are called upper-tier systems. Depending on the technical capabilities of the system, upper-tier interceptors might also be able to engage targets during the late midcourse phase before the missile reenters the atmosphere. With their longer ranges, upper-tier systems are called wide-area systems because they can defend a relatively large area rather than just a single target."

²⁴ Ibid, p. 5.

²⁵ Ibid.

²⁶ William S. Cohen, "Report of the Quadrennial Defense Review," May 1997, p. 48.

²⁷ Priest, p.1.

²⁸ Ibid.

²⁹ Cohen, p. 11.

³⁰ Pat Towell, "Picking the Best Missile Defense: Cold War Treaty or New Weapons," Congressional Quarterly, Vol: 56, Iss: 16, April 18, 1998, p. 1001.

³¹ "Missile Defense Consensus," Wall Street Journal, 13 January 1999: 1.

³² Helen Dewar, "Senate Republicans Again Fail to Revive Missile Defense Plan," The Washington Post, September 10, 1998, p. A04. "The legislation would require deployment of a shield to protect the country against intercontinental nuclear missiles—a scaled-back version of the space-based Strategic Defense Initiative that was championed by President Ronald Reagan—as soon as it is technologically feasible. The administration plans to decide by 2000 whether to go ahead with a system that could be deployed within three years. It backers argue that the GOP legislation would lock the country into a costly system that could undermine existing arms control agreements and end up being targeted at the wrong threat. Republicans had hope that recent missile tests by North Korea and Iran, coupled with unrest in Russia, would convince at least one senator to switch in support of the bill. But the continued opposition of the Joint Chiefs of Staff, renewed this week by Gen. Henry H. Shelton, its chairman, proved persuasive for any wavering Democrats."

³³ Bill Summary and Status for the 105th Congress, "National Missile Defense Act of 1997," September 9, 1998. "National Missile Defense Act of 1997 - Directs the Secretary of Defense to develop for deployment a National Missile Defense (NMD) system which shall achieve operational capability by the end of 2003. Includes as system elements: (1) an interceptor system that optimizes defensive coverage of the United States; (2) fixed ground-based radar; (3) space-based sensors; and (4) battle management, command, control, and communications. Directs the Secretary to: (1) conduct an integrated systems test by the end of FY 99; (2) use streamlined acquisition procedures; (3) develop a follow-on program that leverages off of, and that could augment, the NMD system to provide for a layered defense; and (4) report to the Congress on the plan for carrying out this Act, the appropriations required for FY 98 through 03, and the point at which activity would conflict with terms of the Anti-Ballistic Missile (ABM) Treaty."

³⁴ Gertz, p.3.

³⁵ Pena, pp. 5-8.

³⁶ John Donnelly, "Intel Says Taepo Dong 2 Could Strike Entire U.S." Defense Weekly, 25 January 1999; available from <<http://wwwebird.dtic.mil/Jan1999/e19990125intel.het>>; Internet; accessed 26 January 1999.

³⁷ Bryan Bender, "ICBMs could threaten USA by 2003, says latest report," Jane's Defense Weekly, 22 July 1998, p.2.

³⁸ Donnelly, p.1.

³⁹ Dewar, A04.

⁴⁰ Bradley Graham, "Antimissile Systems' Costs Test U.S. Ability to Pay, General Says," The Washington Post, September 3, 1998, p. A04.

⁴¹ Pena, p. 13.

⁴² Walter Pincus, "Pentagon Debates Arms Treaty Changes," The Washington Post, 22 January 1999, Sec. A, p. 16.

⁴³ Jesse Helms, "Amend the ABM Treaty? No, Scrap It," Wall Street Journal, 22 January 1999, available from <<http://ebird.dtic.mil/Jan1999/e199990122amend.htm>>; Internet; accessed 26 January 1999. "But administration officials have made it clear that unless the Russians are willing to give that

permission (to build an NMD system), they have no intention of actually deploying a nationwide missile defense system. Why? Because the administration believes that any such deployment would violate the ABM Treaty. And, as National Security Adviser Samuel Berger affirmed in a speech just last week, 'we remain strongly committed to the 1972 Anti-Ballistic Missile Treaty as a cornerstone of our security.'

⁴⁴ Priest, p.1.

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